

Research Design

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Research Design

- Decisions regarding what, where, when, how much, by what means concerning an inquiry or a research study constitute a research design.
 - (i) What is the study about?
 - (ii) Why is the study being made?
 - (iii) Where will the study be carried out?
 - (iv) What type of data is required?
 - (v) Where can the required data be found?
 - (vi) What periods of time will the study include?
 - (vii) What will be the sample design?
 - (viii) What techniques of data collection will be used?
 - (ix) How will the data be analysed?
 - (x) In what style will the report be prepared?

Parts of Research Design

- *the sampling design* which deals with the method of selecting items to be observed for the given study
- *the observational design* which relates to the conditions under which the observations are to be made
- *the statistical design* which concerns with the question of how many items are to be observed and how the information and data gathered are to be analysed
- *the operational design* which deals with the techniques by which the procedures specified in the sampling, statistical and observational designs can be carried out

features of a research design

- It is a plan that specifies the sources and types of information relevant to the research problem.
- It is a strategy specifying which approach will be used for gathering and analysing the data.
- It also includes the time and cost budgets since most studies are done under these two constraints

research design contains

- (a) a clear statement of the research problem;
- (b) procedures and techniques to be used for gathering information;
- (c) the population to be studied;
- (d) methods to be used in processing and analysing data

NEED FOR RESEARCH DESIGN

- it facilitates the smooth sailing of the various research operations, thereby making research as efficient as possible yielding maximal information with minimal expenditure of effort, time and money
- Research design stands for advance planning of the methods to be adopted for collecting the relevant data and the techniques to be used in their analysis, keeping in view the objective of the research and the availability of staff, time and money.

FEATURES OF A GOOD DESIGN

- the design which minimises bias and maximises the reliability of the data collected and analysed is considered a good design. The design which gives the smallest experimental error is supposed to be the best design in many investigations.
- Similarly, a design which yields maximal information and provides an opportunity for considering many different aspects of a problem is considered most appropriate and efficient design in respect of many research problems.

FEATURES OF A GOOD DESIGN

- (i) the means of obtaining information;
- (ii) the availability and skills of the researcher and his staff, if any;
- (iii) the objective of the problem to be studied;
- (iv) the nature of the problem to be studied; and
- (v) the availability of time and money for the research work.

DIFFERENT RESEARCH DESIGNS

- (1) research design in case of exploratory research studies;
- (2) research design in case of descriptive and diagnostic research studies,
- (3) research design in case of hypothesis-testing research studies.

<i>Research Design</i>	<i>Type of study</i>	
	<i>Exploratory or Formulative</i>	<i>Descriptive/Diagnostic</i>
Overall design	Flexible design (design must provide opportunity for considering different aspects of the problem)	Rigid design (design must make enough provision for protection against bias and must maximise reliability)
(i) Sampling design	Non-probability sampling design (purposive or judgement sampling)	Probability sampling design (random sampling)
(ii) Statistical design	No pre-planned design for analysis	Pre-planned design for analysis
(iii) Observational design	Unstructured instruments for collection of data	Structured or well thought out instruments for collection of data
(iv) Operational design	No fixed decisions about the operational procedures	Advanced decisions about operational procedures.

BASIC PRINCIPLES OF EXPERIMENTAL DESIGNS

- (1) Principle of Replication; the experiment should be repeated more than once
- (2) Principle of Randomization; provides protection, when we conduct an experiment, against the effect of extraneous factors by randomization
- (3) Principle of Local Control : the extraneous factor, the known source of variability, is made to vary deliberately over as wide a range as necessary and this needs to be done in such a way that the variability it causes can be measured and hence eliminated from the experimental error.

